

## Reporting Summary

Nature Research wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Research policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

### Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a Confirmed

- The exact sample size ( $n$ ) for each experimental group/condition, given as a discrete number and unit of measurement
- A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- The statistical test(s) used AND whether they are one- or two-sided  
*Only common tests should be described solely by name; describe more complex techniques in the Methods section.*
- A description of all covariates tested
- A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
- For null hypothesis testing, the test statistic (e.g.  $F$ ,  $t$ ,  $r$ ) with confidence intervals, effect sizes, degrees of freedom and  $P$  value noted  
*Give  $P$  values as exact values whenever suitable.*
- For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- Estimates of effect sizes (e.g. Cohen's  $d$ , Pearson's  $r$ ), indicating how they were calculated

*Our web collection on [statistics for biologists](#) contains articles on many of the points above.*

### Software and code

Policy information about [availability of computer code](#)

Data collection

Data analysis

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research [guidelines for submitting code & software](#) for further information.

### Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

## Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

Life sciences       Behavioural & social sciences       Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/documents/nr-reporting-summary-flat.pdf](https://www.nature.com/documents/nr-reporting-summary-flat.pdf)

## Life sciences study design

All studies must disclose on these points even when the disclosure is negative.

Sample size      No sample size calculation was performed, because it is not relevant to our study.

Data exclusions      No data were excluded from these analyses.

Replication      The replication of different kinds of experiments have been explained in figure legends.

Randomization      This is not relevant to our study.

Blinding      The investigators were blinded to group allocation during data collection and/or data analysis.

## Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

### Materials & experimental systems

n/a      Involved in the study

Antibodies

Eukaryotic cell lines

Palaeontology and archaeology

Animals and other organisms

Human research participants

Clinical data

Dual use research of concern

### Methods

n/a      Involved in the study

ChIP-seq

Flow cytometry

MRI-based neuroimaging

## Antibodies

Antibodies used      The antibodies to SARS-CoV-2 S (#ab272504) or N (#ab273167) (Abcam, Cambridge, MA, USA), phosphor (p)-p65 (#3033)/total (t)-p65 (#4764), p-ERK (#4370)/t-ERK (#4695), p-JNK (#4668)/t-JNK (#9258), p-p38 (#4511)/t-p38 (#9212) and GAPDH (#5174) as a loading control (Cell Signaling, Danvers, MA, USA).

Validation      The validation of these commercial antibodies are obtained from the vendors' website.

## Eukaryotic cell lines

Policy information about [cell lines](#)

Cell line source(s)      Human iSLK.219 cells were constructed and obtained from Dr. Don Ganem's lab (Ref. 12). HEK293T (Human embryonic kidney 293T) cells and KSHV+ PEL cell lines, BCP-1 and BCBL-1, were purchased from American Type Culture Collection (ATCC).

Authentication      The authentication of HEK293T, BCP-1, BCBL-1 can be found on ATCC website; the details about the creation of iSLK.219 can be found in Ref. 12.

Mycoplasma contamination      All the cell lines were tested negative for mycoplasma contamination.

Commonly misidentified lines (See [ICLAC](#) register)      n/a